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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/576,946

04/25/2006

Shozo Oshio

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5931

53148

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11/10/2008

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EXAMINER

KOSLOW, CAROL M

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/576,946	<b>Applicant(s)</b> OSHIO, SHOZO	
	<b>Examiner</b> C. Melissa Koslow	<b>Art Unit</b> 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 September 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2,5-10,12-17,19,21,23 and 25-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16 and 17 is/are allowed.
- 6) ☒ Claim(s) 1,2,5-10, 12-15, 19, 21, 23, 25-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

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This action is in response to applicants' amendment of 10 September 2008. The amendments to the claims and specification have overcome the objections to the specification and to claims 8, 20 and 22; the 35 USC 112, second paragraph rejection, the art rejections. The indicated allowability of claims 6, 10, 12, 14, 15 and 18 (now claim 29) is withdrawn in view of applicants amendments to the claims. Rejections based on the amended claims follow.

Applicant's arguments with respect to the remaining rejections have been fully considered but they are not persuasive.

The disclosure is objected to because of the following informalities: Page 8, lines 16-17 teaches compounds having a SIALON-type crystal structure are excluded. It is unclear if applicants are excluding compounds of silicon, nitrogen, an alkaline earth or rare earth element and optionally oxygen and aluminum having the crystal structures of either cubic spinel or hexagonal wurzite, which are the crystal structures of alpha- and beta-SIALON; if they mean all SIALON or if they mean the SIALON discussed on page 2, which has the formula  $M_{p/2}Si_{12-p-q}Al_{p+q}O_qN_{16-q}$ , where M is Ca or Sr, q is 0-2.5 and p is 1.5-3, is excluded. Appropriate correction is required.

Claims 1, 2, 5-10, 13, 15, 19, 21, 23 and 25-28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The specification teaches away from using an alkaline earth metal, a rare earth metal, an alkaline earth nitride and a rare earth nitride in the taught process of reacting, by heating in a

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nitriding atmosphere, an alkaline earth or rare earth source, a silicon source and carbon on page 3, lines 5-12, page 6, lines 10-15, page 12, lines 10-13 and page 30, lines 25-27. Therefore the process of claims 5, 19, 21, 23 and 25-27 is not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention since the specification clearly teaches not to perform the claimed process.

The negative limitation added to claim 1 is new matter. Page 12 teaches that compounds having a SIALON-type crystal structure are excluded. This is different from the claimed negative limitation which excludes compounds having a SIALON-type structure. This claims 1, 2, 6-10, 13, 15 and 28 not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicants' arguments are not convincing since the specification clearly teaches away from the claimed process. Therefore since applicants teach not to perform the claimed process, applicants did not consider the process of claims 5, 19, 21, 23 and 25-27 as their invention. The rejection is maintained.

Claims 1, 2, 6, 7, 9, 10, 12-15, 28 and 29 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for producing a nitridosilicate-based compound by reacting an alkaline earth or rare earth material, which is capable of being converted to an oxide by heating, a silicon compound and carbon by heating in an atmosphere of nitriding gas does not reasonably provide enablement for reacting an alkaline earth or rare earth material, which is capable of being converted to an oxide by heating, a silicon compound and

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carbon and an atmosphere of a nitriding gas. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

Page 13, line 28 through page 14, line 2 states the reaction is started and maintained by an operation of adding energy to the reaction materials, for example by heating. The specification only teaches the heating conditions required for the reaction to occur and there is no teaching in the specification as to the amount of other types energy that would be required to cause the reaction. The claims do not include any step of adding energy, which mean the claims include embodiments where no energy is added. Thus the scope of the claims is not enabled by the teachings in the specification.

Claims 1, 2, 6-10, 12-15, 28 and 29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 13 and 28 are duplicate claims. Claims 1, 2, 6-10, 13, 15 and 28 are indefinite since it is unclear what is meant by "SIALON-type structure". This phrase is not found in the specification. The specification teaches compounds having a SIALON-type crystal structure are excluded on page 12 and discusses a SIALON having the formula  $M_{p/2}Si_{12-p-q}Al_{p+q}O_qN_{16-q}$ , where M is Ca or Ca and Sr, q is 0-2.5 and p is 1.5-3 on page 2. Thus it is unclear if the excluded compounds are all SIALONs, those having the formula of the SIALON on page 2 or if all compounds having a cubic spinel crystal structure or a hexagonal wurzite crystal structure, which are the crystals structures of the alpha and beta phases of SIALON, are excluded. Finally, claims 1, 2, 6, 7, 9, 10, 12-15, 28 and 29 are rejected under 35 U.S.C. 112, second paragraph, as being

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incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: how the silicon compound, the carbon, the alkaline earth or rare earth materials and the nitriding gas are actually reacted so as to form a nitridosilicate-based compound. It is noted that the specification teaches on page 13, line 28 through page 14, line 2 that the reaction is started and maintained by an operation of adding energy to the reaction materials, for example by heating.

The art rejection or a new art rejection over U.S. 4,851,205 may be reinstated or made depending on how applicants amend claim 1 so as to overcome the new matter rejection and the 35 USC 112, second paragraph rejection.

Claims 16 and 17 are allowable for the reasons given in the previous action.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa Koslow whose telephone number is (571) 272-1371. The examiner can normally be reached on Monday-Friday from 8:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo, can be reached at (571) 272-1233.

The fax number for all official communications is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/cmk/  
November 10, 2008

/C. Melissa Koslow/  
Primary Examiner  
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